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# **EUROPEAN PATENT APPLICATION**

21 Application number: 85301182.3

51 Int. Cl.<sup>4</sup>: **A 47 J 43/046**  
**A 47 J 43/06**

22 Date of filing: 22.02.85

30 Priority: 08.03.84 GB 8406130

43 Date of publication of application:  
 02.10.85 Bulletin 85/40

84 Designated Contracting States:  
 AT BE CH DE FR GB IT LI LU NL SE

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54 A food processing arrangement.

57 A food processing arrangement includes a motor housing (2) pivotally mounted on a base (1) and a gearbox housing (3), upon which a bowl (4) for containing food to be processed is located, is integrally connected to the motor housing (2). A gearbox (7) provides two oppositely-extending co-axial rotational drive axes (9, 10) for rotational drive of food processing attachments. The first drive axis (9) provides a usable vertical axis, when the integral housings (2, 3) are in an unpivoted position relative to the base (1), and the second drive axis (10) provides a usable horizontal axis, when the housings (2, 3) are in a pivotted position relative to the base (1).

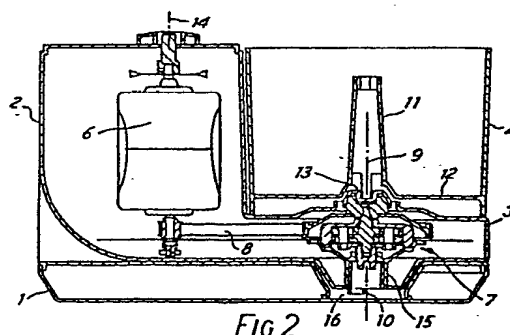


FIG.2

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: 1 :

A FOOD PROCESSING ARRANGEMENT

This invention relates to a food processing arrangement.

Conventional food processors and mixers are usually provided with a vertical drive shaft into which various mixing and/or processing attachments are inserted to provide the  
5 required preparation of foodstuffs placed within a container, such as a bowl, provided on the processor or mixer.

The shaft is generally either driven from the top thereof and arranged to provide rotation of a whisk, dough hook, etc, as in the case of a mixer, or from the base thereof to provide  
10 rotation of a cutter blade, etc, as in the case of a processor.

In addition to a vertical drive shaft, some food mixers are provided with a horizontal shaft connected to a gearing mechanism and a motor for rotationally driving the vertical shaft. Horizontally-disposed attachments, such as a food  
15 mincer, can opener, cream maker, pasta maker, coffee grinder, etc, may then be rotationally driven by the horizontal shaft. Additionally the horizontal shaft may, by suitable gearing, be provided with a slower rotational speed than the vertical shaft.

It is an object of the present invention to provide a food  
20 processing arrangement, having a vertical drive shaft driven

from the base thereof, which is also capable of receiving horizontally-disposed attachments for the preparation of foodstuffs.

According to the present invention there is provided a food processing arrangement comprising a base portion and a gearing arrangement arranged to be driven by a motor, characterised in that said gearing arrangement provides first and second oppositely-extending drive axes for rotational drive of attachments for food processing, at least said gearing arrangement being capable of pivotal movement relative to said base portion, so that said first axis is usable, when said arrangement is in an unpivotted position, and said second axis is usable when said arrangement is in a pivotted position.

Preferably the first axis is generally vertical and the second axis is generally horizontal, when usable, and the gearing arrangement may be constructed so that the oppositely-extending drive axes are co-axial.

The gearing arrangement is preferably rigidly connected to the motor housing and the housing is pivotally connected to the base portion, so that the housing and the gearing arrangement are together capable of pivotal movement relative to said base portion.

The food processing arrangement is preferably provided with a control panel which is connected to the base portion so as to remain in a fixed position upon pivotal movement of the gearing arrangement.

The gearing arrangement is preferably constructed so that the generally horizontal rotational axis provides a lower rotational speed than the generally vertical axis.

The housing is also preferably provided with a second generally vertical rotational axis, which provides a higher rotational speed than the first-mentioned vertical rotational axis.

The invention will now be further described by way of example only with reference to the accompanying drawings wherein:

Figure 1 shows a schematic side view of one embodiment of a food processing arrangement, in accordance with the present

invention,

Figure 2 shows a sectional view of the embodiment shown in Figure 1,

Figure 3 shows a schematic side view of the embodiment in a pivotted position, and

Figure 4 shows a sectional view of the embodiment as shown in Figure 3.

Figure 1 shows a food processing arrangement having a base 1, a motor housing 2 pivotally connected to the base 1 and integrally connected to a gearbox housing 3, upon which a bowl 4 for containing foodstuffs to be processed is located. A control panel 5, accommodating suitable user-operable control knobs, etc, for operating the processing arrangement, is attached to the base 1.

In Figure 2, it can be seen that a motor 6 accommodated within the housing 2 drives a cycloidal action gearbox 7 via a belt 8, the gearbox 7 being accommodated within the housing 3. The gearbox 7 is arranged so as to provide two oppositely-extending co-axial rotational drive axes 9 and 10, the drive speed associated with axis 10 preferably having a lower rotational speed than that associated with axis 9.

The bowl 4 is provided with a drive shaft 11, which is integrally formed with base 12 of the bowl 4 and is located over hub 13, which is concentric with the axis 9. Any suitable attachment, such as a whisk, dough hook, cutter blade, etc, for preparing foodstuffs within the bowl 4 may then be inserted down into the shaft 11 and driven for rotation by the motor 6, via the gearbox 7. The bowl 4 is preferably provided with a lid (not shown), which may also be provided with a safety interlock mechanism, so as to prevent rotation of the attachments before the lid is correctly positioned on the bowl 4.

The arrangement may also be provided with a second vertical rotational drive axis 14, which can be employed for operation of a food blender or liquidiser attachment requiring higher rotational speeds than the food processor attachments driven

about axis 9.

Drive axis 10, extending from gearbox 7 in an opposite direction to drive axis 9 has a concentric hub 15, which is accommodated within a hollow 16 in the base 1 of the arrangement. With the food processing arrangement in this position, the axis 10 cannot be employed for rotational drive of attachments.

However, Figures 3 and 4 illustrate the arrangement with the housings 2 and 3 in a pivotted position relative to the base 1, the bowl 4 shown in Figures 1 and 2 having been removed. It can be seen that the arrangement is particularly advantageous in that, upon pivotal movement of the housings 2 and 3, not only does the base 1 remain in a fixed position, but also the control panel 5 remains fixed, thereby facilitating control of the operation of the arrangement, irrespective of the position of housings 2 and 3.

In the pivotted position, axis 10 is readily accessible, so that horizontally-disposed attachments, such as a food mincer, can opener, cream maker, pasta maker, coffee grinder, etc, which are generally required to be rotated at a lower rotational speed than food processor attachments, may be inserted into hub 15 for rotational drive by the motor 6, the gearbox 7 providing the appropriate speed reduction.

A suitable container (not shown) for collecting foodstuffs processed by a horizontally-disposed attachment driven about axis 10 may be positioned upon the base 1 alongside the pivotted housing 2, and may furthermore be correctly located by insertion of the container base into the hollow 16.

Additionally, the base 1 of the arrangement may be provided with storage space for the various attachments and the control panel 5 may include electrical components for providing such facilities as a timer for controlling the food preparation time, a digital temperature sensor and/or weighing scales, the required storage space for these facilities also being provided on the base 1.

A suitable latching mechanism may be provided to latch the housings 2 and 3 into either the first unpivotted position or the pivotted position.

Furthermore, an interlock switching arrangement may be  
5 provided for disabling the arrangement unless the housings 2 and 3 are latched into either the unpivotted or pivotted position.

It can thus be envisaged that the present invention provides a compact, but versatile, food processing arrangement, capable of receiving and driving different types of attachments  
10 for preparing foodstuffs in a variety of ways, whilst remaining easily controllable by a user, irrespective of the attachment being utilised.

CLAIMS

1. A food processing arrangement comprising a base portion (1) and a gearing arrangement (7) arranged to be driven by a motor (6), characterised in that said gearing arrangement (7) provides first (9) and second (10) oppositely-extending drive axes for rotational drive of attachments for food processing, at least said gearing arrangement (7) being capable of pivotal movement relative to said base portion (1), so that said first axis (9) is usable, when said arrangement (7) is in an unpivotted position, and said second axis (10) is usable when said arrangement (7) is in a pivotted position.
2. An arrangement as claimed in Claim 1 wherein said first axis (9) is generally vertical and said second axis (10) is generally horizontal, when usable.
3. An arrangement as claimed in Claim 1 or 2 wherein said gearing arrangement (7) is constructed so that the oppositely-extending drive axes (9, 10) are co-axial.
4. An arrangement as claimed in Claim 1, 2 or 3 wherein said gearing arrangement (7) is rigidly connected to a housing (2) accommodating said motor (6), said housing (2) being pivotally connected to said base portion (1), so that said housing (2) and said gearing arrangement (7) are together capable of pivotal movement relative to said base portion (1).
5. An arrangement as claimed in any preceding Claim and including a control panel (5) arranged so that it remains in a fixed position, upon pivotal movement of at least said gearing arrangement (7).
6. An arrangement as claimed in any preceding Claim wherein said housing (2) is provided with a further generally vertical axis (14) for said rotational drive, said further axis (14) providing a higher rotational speed than said first and second axes (9, 10).
7. An arrangement as claimed in any preceding Claim wherein said second axis (10) provides a lower rotational speed

than said first axis (9).

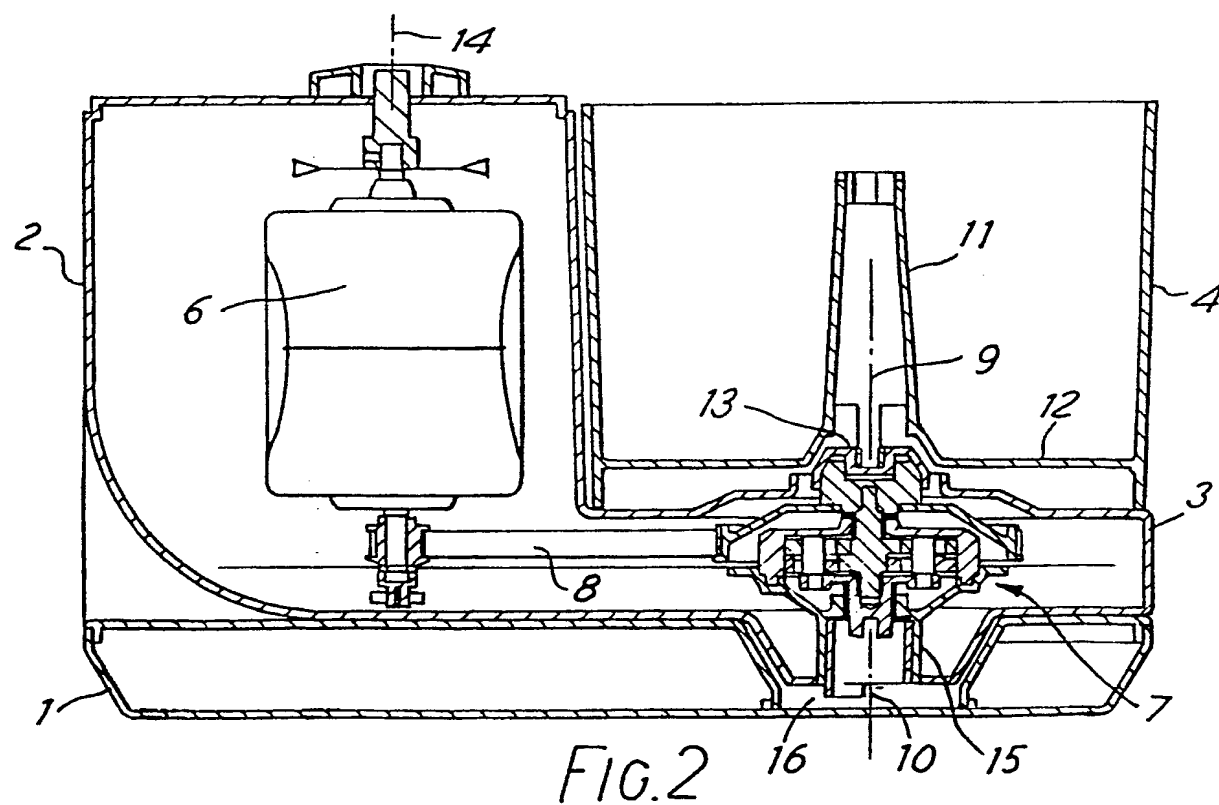
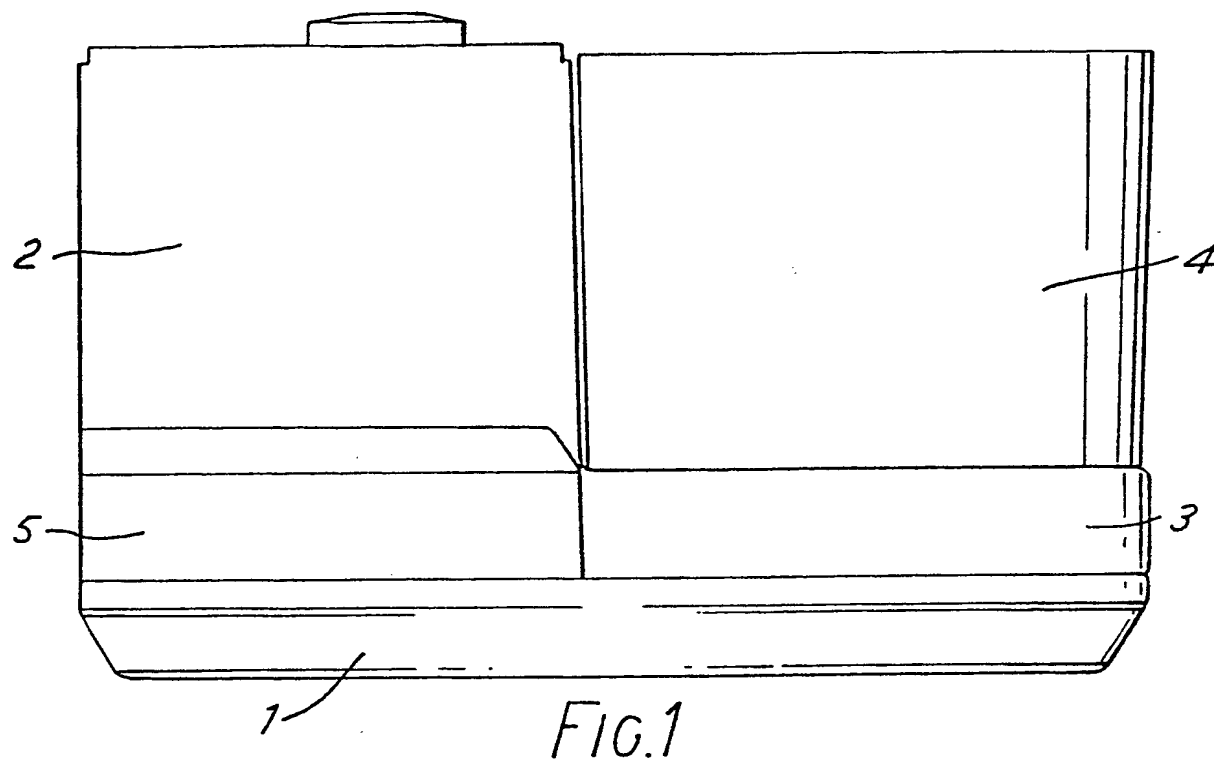
8. An arrangement as claimed in any preceding Claim and including means for storing attachments for preparation of foodstuffs.

5 9. An arrangement as claimed in any preceding Claim and including timing means for monitoring preparation time of foodstuffs.

10 10. An arrangement as claimed in any preceding Claim and including temperature sensing means for monitoring the temperature of foodstuffs.

11. An arrangement as claimed in any preceding Claim and including means for weighing foodstuffs.





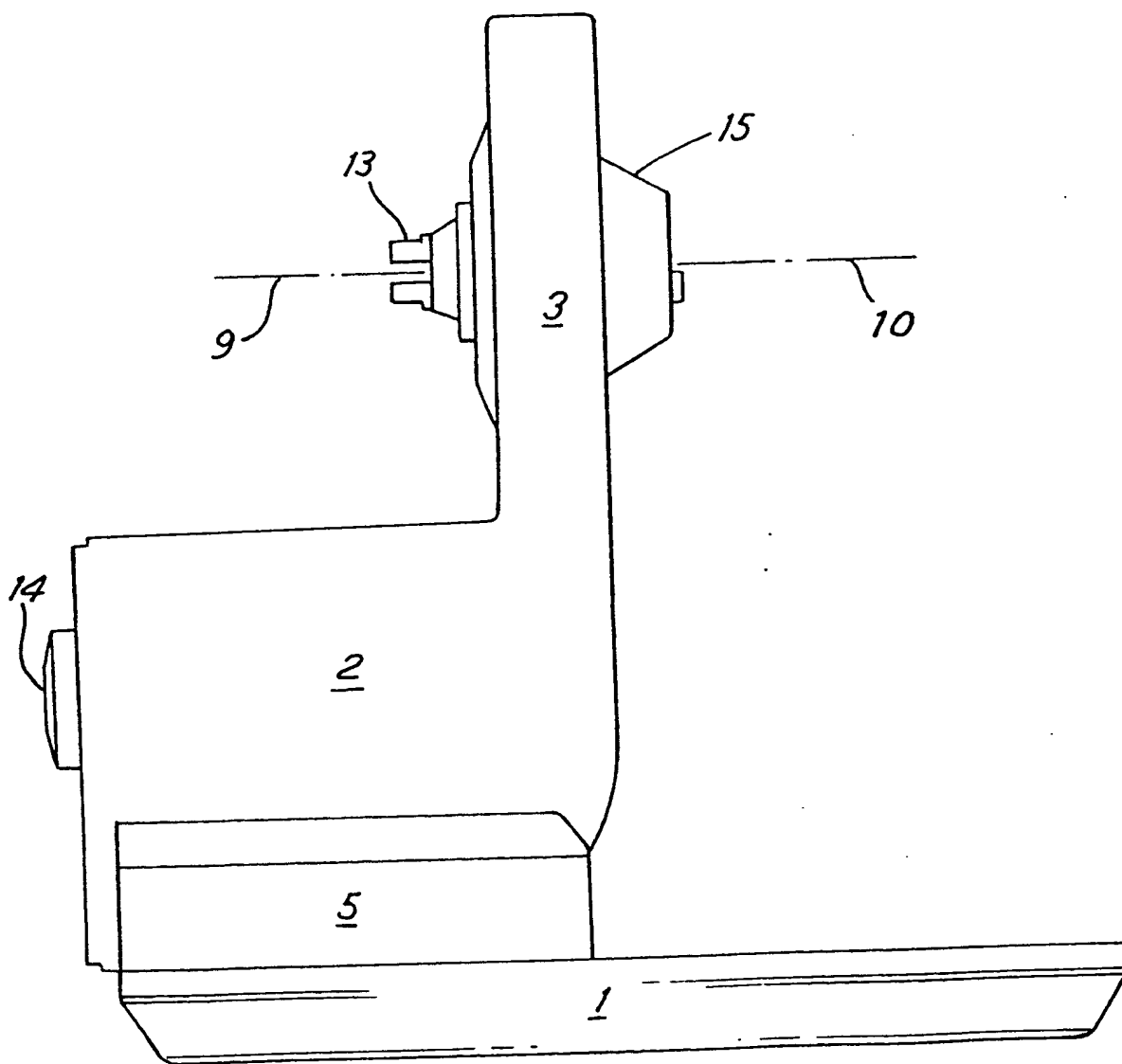
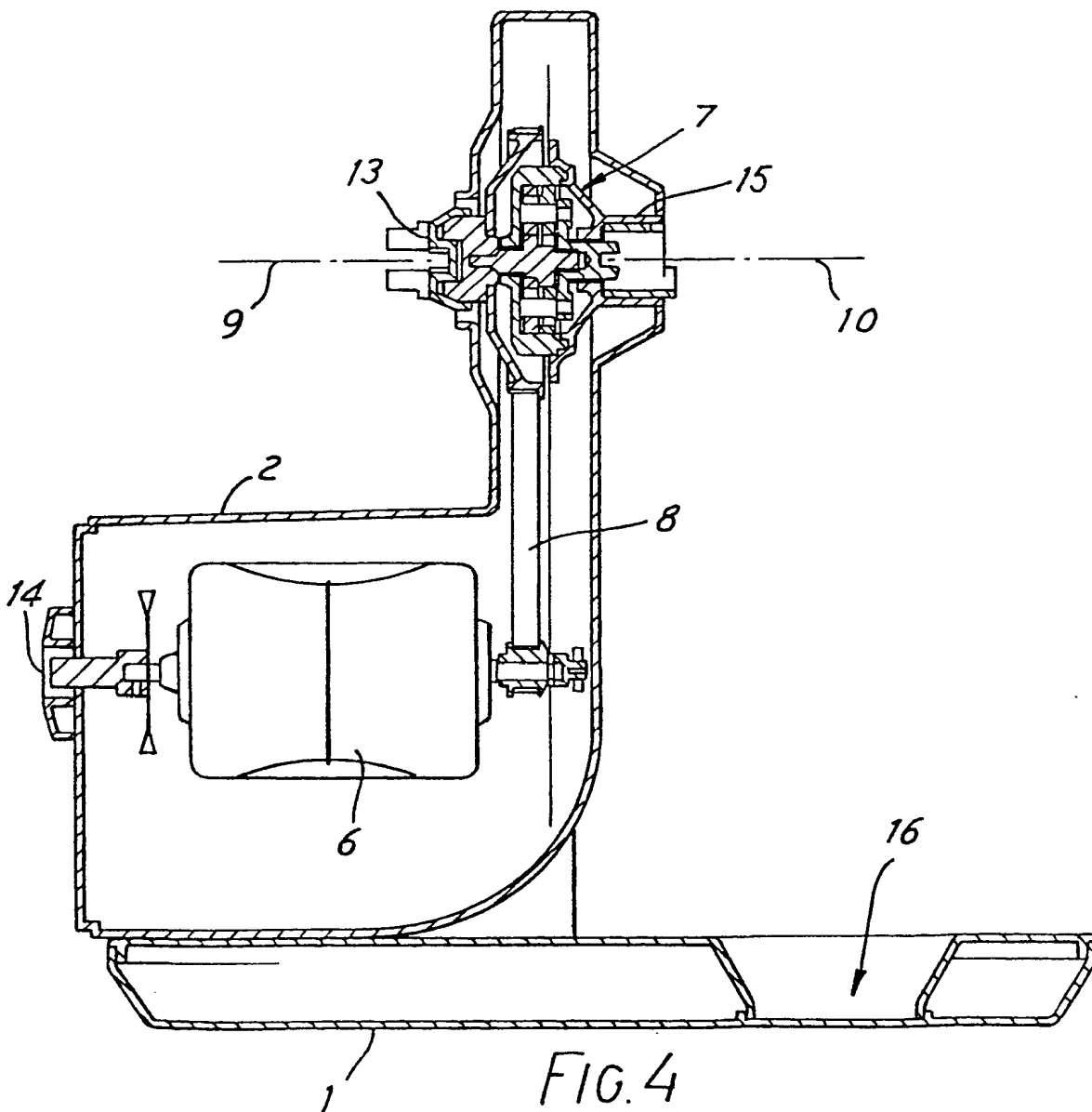


FIG. 3





European Patent  
Office

# EUROPEAN SEARCH REPORT

0156506

Application number

EP 85 30 1182

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl 4)
Y	DE-A-1 529 235 (BRAUN A.G.) * The whole document *	1	A 47 J 43/046 A 47 J 43/06
A	---	2,4	
Y	DE-A-2 809 416 (AB ELECTROLUX) * Figures 1,2,4,7; page 7 *	1	
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A	GB-A-2 082 713 (SUNBEAM) * Figure 16; figure 23 *	6	
A	EP-A-0 058 118 (ROBOT-COUPE) * Figures 4-7 *	8	TECHNICAL FIELDS SEARCHED (Int Cl 4)
A	FR-A-2 090 737 (VORWERK & CO.) * Page 3, lines 20-31; figure *	9,10	A 47 J
A	US-A-4 362 219 (CARLSSON) * Abstract *	11	
A	GB-A- 701 929 (BOSCH) -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 14-06-1985	Examiner SCHARTZ J.
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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